

ABSTRACT

Disclosed is a soft magnetic Co-based metallic glass alloy with high glass forming ability, which has a supercooled-liquid temperature interval (ΔT_γ) of 40 K or more, a reduced glass-transition temperature (T_g / T_m) of 0.59 and a low coercive force of 2.0 A/m or less. The metallic glass alloy is represented by the following composition formula: $[\text{Co}_{1-n-(a+b)} \text{Fe}_n \text{B}_a \text{Si}_b]_{100-\chi} \text{M}_\chi$, wherein each of a, b and n represents an atomic ratio satisfying the following relations: $0.1 \leq a \leq 0.17$; $0.06 \leq b \leq 0.15$; $0.18 \leq a + b \leq 0.3$; and $0 \leq n \leq 0.08$, M representing one or more elements selected from the group consisting of Zr, Nb, Ta, Hf, Mo, Ti, V, Cr, Pd and W, and χ satisfying the following relation: $3 \text{ atomic\%} \leq \chi \leq 10 \text{ atomic\%}$. The present invention overcomes restrictions in preparing a metallic glass bar with a thickness of 1 mm or more from conventional Co-Fe-B-Si-based metallic glasses due to their poor glass forming ability, and provides an excellent Co-Fe-B-Si-based metallic glass allowing the formation of bulk metallic glass, which serves as a key technology for achieving a broader application fields of metallic glass products.